Surface Wind Convergence, Sea Surface Temperature, and Rainfall Variations in the Tropical Pacific During 1992-94

David Halpern (Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91 109-8099; tel 818-354-5327; e-mail: d.halpern@omnet.com

The following monthly mean data sets are employed: 1 "xl °ERS- 1 surface wind convergence, 1 "x 10 AVHRR sea surface temperature (SST), 1 "x 10 Reynolds-blended SST, 2.5°x2.5° GPI rainfall, and 2.5° x2,5° MSU rainfall. Analyses are confined to the latitudinal band 7.5 °S- 12.5°N. Three regions are defined: western Pacific, 140°E- 180°; central Pacific, 180°- 140°W; eastern Pacific, 140°W-90°W. Ratios of the mean MSU- and GPI-derived rainfalls were ICSS than unity in the western and central regions and greater than unity in the eastern region, Correlation coefficient between MSU and GPI rainfalls was highest (0.95) in the estern region where the amount of rainfall and the area of rainfall were much smaller than that in the western region where the correlation coefficient was the lowest (0.76). Both estimates of SST were similar. Annual cycle of surface wind convergence was strongest in the eastern region and weakest in the western region, In the eastern Pacific, the surface wind was always convergent in the ITCZ region from 2°N- 12"N, only convergent in March-June in the 2°S-60S area, and nearly always divergent over the 2°S-2°N cold tongue. In the western Pacific where the SST was always above 28°C the rainfall and surface convergence were both maximum compared to the other two regions. In the eastern Pacific, SSTS above about 27°C were associated with surface wind convergence and increased rainfall; for SSTS below about 27°C, the surface wind was divergent and rainfall was minimal. In the central Pacific, the 2°S-20N SST was always greater than 27°C, although the surface wind was usually divergent with minimal amount of rainfall.

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3. Dr. David Halpern
Jet Propulsion Lab.
M/S 300-323
4800 Oak Grove Dr.
Pasadena, CA 91109

Tel: 8183545327
Fax: 8183936720
Email: d.halpern@omnet.com

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